WHAT IS CLAIMED IS:

1. A wet and dry weather water disinfection system, comprising:

a disinfecting chemical dispenser;

a mixing chamber wherein a disinfection chemical from the disinfecting chemical dispenser is added to the water to be treated; and

a control unit that controls the addition of disinfection chemical to the water to be treated.

2. The wet and dry weather water disinfection system of claim 1, further comprising a sensor to measure the water's characteristics.

3. The wet and dry weather water disinfection system of claim 2, wherein the sensor to measure water characteristics is located upstream of the disinfecting chemical dispenser.

4. The wet and dry weather water disinfection system of claim 3, further comprising a sensor in the mixing chamber to measure characteristics of the water mixed with the disinfecting chemical.

5. The wet and dry weather water disinfection system of claim 3, further comprising a sensor downstream of the mixing chamber to measure the chemically treated water's characteristics.

6. The wet and dry weather water disinfection system of claim 1, wherein the control unit incorporates a feed-back protocol that incorporates an array of physical, chemical

and/or biological parameters for efficiently disinfecting the water.

7. The wet and dry weather water disinfection system of claim 1, further comprising a power source selected from the group consisting of battery power, externally supplied power, and a solar power unit.

8. The wet and dry weather water disinfection system of claim 1, further comprising a communication unit that permits communication between the wet and dry weather water disinfection system and a distant management station.

9. The wet and dry weather water disinfection system of claim 8, wherein the communication unit comprises at least one of a wireless telemetry unit, and wired communication unit for connection to a computer network.

10. The wet and dry weather water disinfection system of claim 8, wherein the communication unit provides for at least one of remote adjustment of dosage rates, dynamic transfer of data to the system to allow pre-administration of chemicals prior to a first flush event, remote system diagnosis, and remote inventory control.

11. The wet and dry weather water disinfection system of claim 1, further comprising a flow meter to measure the flow rate of water through the system.

12. The wet and dry weather water disinfection system of claim 1, wherein sensor measures at least one of temperature,

turbidity, pH, dissolved oxygen, bacterial count, and chemical residue level.

13. The wet and dry weather water disinfection system of claim 1, wherein the disinfecting chemical dispenser comprises a chemical storage container, a valve, a motive means to move the disinfecting chemical from the storage container to the mixing chamber, and a probe through which the disinfecting chemical is injected into the mixing chamber.

14. The wet and dry weather water disinfection system of claim 14, wherein the disinfecting chemical dispenser comprises plurality of chemical storage containers which store feedstocks of precursor chemicals to the disinfecting chemical.

15. The wet and dry weather water disinfection system of claim 1, further comprising a UV radiation source that illuminates the solution of wastewater and chemical downstream of the mixing chamber.

16. The wet and dry weather water disinfection system of claim 1, wherein the disinfecting chemical comprises chlorine dioxide.

17. The wet and dry weather water disinfection system of claim 1, wherein the disinfecting chemical comprises a solution of a peroxide or a peroxide precursor.

18. The wet and dry weather water disinfection system of claim 15, wherein the disinfecting chemical comprises a

solution of a peroxide or a peroxide precursor, and the mixed-peroxide and water to be treated solution is then photolyzed by the UV radiation source.

19. The wet and dry weather water disinfection system of claim 1, wherein the disinfecting chemical comprises a solution of a persulfate ($S_2O_8^{2-}$) salt.

20. The wet and dry weather water disinfection system of claim 15, wherein the disinfecting chemical comprises a solution of a persulfate ($S_2O_8^{2-}$) salt, and the mixed ($S_2O_8^{2-}$)-stormwater solution is then photolyzed by the UV radiation source.

21. The wet and dry weather water disinfection system of claim 1, wherein the disinfection system is locatable in-line at a storm drain collection location.

22. The wet and dry weather water disinfection system of claim 1, wherein the water disinfection system is provided as a bypass system, which further comprises a baffle to control the flow of water either directly through a water conduit or through the water disinfection system.

23. The wet and dry weather water disinfection system of claim 1, wherein the mixing chamber has static mixing parts to ensure thorough mixing of the water with the added disinfecting chemical.

24. The wet and dry weather water disinfection system of claim 1, further comprising a filtering system for capturing

at least one of sediments, debris and hydrocarbons prior to treatment with the disinfecting chemical.

25. An automated system for chemical disinfection of wet and dry weather water , comprising:

a disinfecting chemical dispenser;

a mixing chamber wherein a disinfection chemical from the disinfecting chemical dispenser is added to water to be treated and the water and the disinfecting chemical mix;

a sensor to measure the water's characteristics; and

a control unit that controls the injection of disinfection chemical to the water.

26. The automated chemical disinfection system of claim 25, wherein the sensor to measure water characteristics is located upstream of the disinfecting chemical dispenser.

27. The automated chemical disinfection system of claim 25, further comprising a sensor in the mixing chamber to measure characteristics of the water mixed with the disinfecting chemical.

28. The automated chemical disinfection system of claim 25, further comprising a sensor downstream of the mixing chamber to measure the chemically treated water's characteristics.

29. The automated chemical disinfection system of claim 22, wherein the control unit incorporates a feed-back protocol that incorporates an array of physical, chemical and/or biological parameters for efficiently disinfecting the water.

30. The automated chemical disinfection system of claim 25, further comprising a communication unit that permits communication between the water disinfection system and a distant management station.

31. The automated chemical disinfection system of claim 25, wherein the communication unit provides for at least one of remote adjustment of dosage rates, dynamic transfer of data to the system to allow pre-administration of chemicals prior to the a first flush event, remote system diagnosis, and remote inventory control.

32. The automated chemical disinfection system of claim 25, further comprising a flow meter to measure the flow rate of water through the system.

33. The automated chemical disinfection system of claim 25, wherein sensor measures at least one of temperature, turbidity, pH, dissolved oxygen, bacterial count, and chemical residues.

34. The automated chemical disinfection system of claim 25, wherein the disinfecting chemical dispenser comprises a chemical storage container, a valve, a motive means to move the disinfecting chemical from the storage container to the mixing chamber, and a probe through which the disinfecting chemical is injected into the mixing chamber.

35. The automated chemical disinfection system of claim 25, further comprising a UV radiation source that illuminates the

solution of water and chemical downstream of the mixing chamber.

36. The automated chemical disinfection system of claim 25, wherein the disinfecting chemical comprises chlorine dioxide.

37. The automated chemical disinfection system of claim 35, wherein the disinfecting chemical comprises a solution of a peroxide or a peroxide precursor, and the mixed peroxide and water to be treated solution is then photolyzed by the UV radiation source.

38. The automated chemical disinfection system of claim 25, wherein the disinfecting chemical comprises a solution of a peroxide or a peroxide precursor.

39. The automated chemical disinfection system of claim 35, wherein the disinfecting chemical comprises a solution of a persulfate ($S_2O_8^{2-}$) salt, and the mixed ($S_2O_8^{2-}$)-water to be treated solution is then photolyzed by the UV radiation source.

40. The automated chemical disinfection system of claim 25, wherein the disinfecting chemical comprises a solution of a persulfate ($S_2O_8^{2-}$) salt.

41. The automated chemical disinfection system of claim 25, further comprising a filtering system for capturing at least one of sediments, debris and hydrocarbons prior to treatment with the disinfecting chemical.

42. An automated system for chemical disinfection of water, comprising:

a disinfecting chemical dispenser;

a mixing chamber wherein a disinfection chemical from the disinfecting chemical dispenser is added to water and the water and the disinfecting chemical mix;

sensors to measure the water's characteristics comprising at least one sensor located upstream of the disinfecting chemical dispenser, at least one sensor in the mixing chamber, and at least one sensor downstream of the mixing chamber to measure the chemically treated water's characteristics; and

a control unit that controls the injection of disinfection chemical to the water, wherein the control unit incorporates a feed-back protocol that incorporates an array of physical, chemical and/or biological parameters for efficiently disinfecting the water.

43. The automated system for chemical disinfection of water of claim 42, further comprising a communication unit that permits communication between the water disinfection system and a distant management station.

44. The automated system for chemical disinfection of water of claim 42, wherein the communication unit provides for at least one of remote adjustment of dosage rates, dynamic transfer of data to the system to allow pre-administration of chemicals prior to the a first flush event, remote system diagnosis, and remote inventory control.

45. The automated system for chemical disinfection of water of claim 42, further comprising a flow meter to measure the

flow rate of stormwater through the system.

46. The automated system for chemical disinfection of water of claim 42, wherein sensor measures at least one of temperature, turbidity, pH, dissolved oxygen, bacterial count, and chemical residues.

47. The automated system for chemical disinfection of water of claim 42, wherein the disinfecting chemical dispenser comprises a chemical storage container, a valve, a motive means to move the disinfecting chemical from the storage container to the mixing chamber, and a probe through which the disinfecting chemical is injected into the mixing chamber.

48. The automated system for chemical disinfection of water of claim 42, further comprising a UV radiation source that illuminates the solution of wastewater and chemical downstream of the mixing chamber.

49. The automated system for chemical disinfection of water of claim 42, wherein the disinfecting chemical comprises chlorine dioxide, and the chemical dioxide is generated in the disinfection system prior to use.

50. The automated system for chemical disinfection of water of claim 48, wherein the disinfecting chemical comprises a solution of a peroxide or a peroxide precursor, and the mixed H_2O_2-stormwater solution is then photolyzed by the UV radiation source.

51. The automated system for chemical disinfection of water of claim 42, wherein the disinfecting chemical comprises a solution of a peroxide or a peroxide precursor.

52. The automated system for chemical disinfection of water of claim 48, wherein the disinfecting chemical comprises a solution of a persulfate ($S_2O_8^{2-}$) salt, and the mixed ($S_2O_8^{2-}$)-water solution is then photolyzed by the UV radiation source.

53. The automated system for chemical disinfection of water of claim 42, wherein the disinfecting chemical comprises a solution of a persulfate ($S_2O_8^{2-}$) salt.